

Notice of Allowability

Application No.

09/919,850

Examiner

Elliot L Frank

Applicant(s)

TOMITA, HIROYUKI

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant's amendment filed 18 May 2004.
2. ☒ The allowed claim(s) is/are 18-32.
3. ☒ The drawings filed on 02 August 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Mr. Ed Haughey (#44,749) on 12 August 2004.
3. The application has been amended as follows: Claims 11-17 that were previously withdrawn due to a restriction requirement have been cancelled.

REASONS FOR ALLOWANCE

4. The following is an examiner's statement of reasons for allowance:
 - a. The prior art of record, taken singly or in any reasonable combination, fails to teach or fairly suggest the claimed invention.
 - b. Specifically, all of the independent claims, as amended, include at least the following features:
 - i. An exposure apparatus containing a projection optical system.
 - ii. Wherein the projection optical systems consists of spaces that are enclosed by optical elements.
 - iii. The first of said spaces is filled with a helium gas.
 - iv. The second of said spaces is filled with a nitrogen gas.

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- v. Wherein the pressure of the first space is higher than that of the second space.
- c. The "projection optical system" is the beam focusing mechanism in the exposure apparatus made up of optical elements placed between the reticle and the substrate to be exposed. This term is deemed well known in the art.
- d. The most relevant prior art reference is Nishi (USPN 6,545,746 B1). Nishi is an exposure apparatus containing a projection optical system. The various optical elements in the projection optical system of Nishi create spaces containing either helium or one of either nitrogen or dry air. While the systems are similar, Nishi actually teaches away from the instant invention at column 45, lines 17-67 wherein it states that the helium spaces are maintained at the same pressure as the reference gas (the atmospheric gas exterior to the projection optical system). The alternating nitrogen or dry air spaces adjacent to the aforementioned Helium areas are also kept near atmospheric pressure (column 43, line 25-column 44, line 67). As a result, there is no substantial pressure difference maintained between the spaces in the projection optical system of Nishi.
- e. Additional searches on the pressure difference limitation of the instant invention did not disclose a reference that anticipates or makes obvious this requirement.

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- f. Therefore, the limitations of the independent claims, in combination with the remaining elements and features of the claimed invention, were not disclosed nor fairly suggested by the prior art of record.
5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elliot L Frank whose telephone number is (703) 305-5442. The examiner can normally be reached on M-F 7-4:30, 1st Friday off.

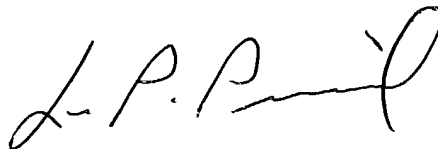
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P Picard can be reached on (703) 308-0538. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ELF
12 August 2004

A handwritten signature in black ink, appearing to read "L. P. Picard", with a stylized flourish at the end.

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

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